

WHAT IS CLAIMED IS:

1. A head slider with a precise positioning actuator, comprising:

a thin plane shaped head section provided with a first surface that is substantially perpendicular to an air bearing surface of said head slider, a second surface opposite to said first surface and at least one head element formed on said first surface; and

an actuator section located at a side of said second surface of said head section and integrally fixed to said head section, for precisely positioning said at least one head element.

2. The head slider as claimed in claim 1, wherein said air bearing surface is formed in said actuator section.

3. The head slider as claimed in claim 1, wherein said actuator section is fixed to said second surface of said head section.

4. The head slider as claimed in claim 3, wherein said actuator section comprises a base member and an actuator layer laminated on said base member, and wherein a surface of said actuator layer, which is opposite to said base member is fixed to said second surface of said head section.

5. The head slider as claimed in claim 4, wherein said air

bearing surface is formed in said base member.

6. The head slider as claimed in claim 1, wherein said actuator section is fixed to both side surfaces of said head section.
  7. The head slider as claimed in claim 6, wherein said actuator section comprises a pair of movable arms capable of displacing its top end portions in response to a drive signal applied to said actuator section, said side surfaces of said head section being fixed to said top end portions, and a static part formed between said pair of movable arms with spaces.
  8. The head slider as claimed in claim 7, wherein said air bearing surface is formed in said static part.
  9. The head slider as claimed in claim 7, wherein said actuator section further comprises a base to be fixed to a support means of said head slider, and wherein said pair of movable arms extend from said base along said air bearing surface.
  10. The head slider as claimed in claim 7, wherein each of said pair of movable arms comprises an arm member, and a piezoelectric element formed on or fixed to a surface of said arm member.
  11. The head slider as claimed in claim 1, wherein said at least

one head element is at least one thin-film magnetic head element.

12. A manufacturing method of a head slider with a precise positioning actuator, comprising the steps of:

forming a plurality of head elements on a front surface of a head element substrate;

grinding a rear surface of said head element substrate with said plurality of head elements formed to have a thin head element substrate;

dicing said thin head element substrate into a plurality of individual first members; and

integrally fixing a second member with at least one precise positioning actuator section to each of said first members so as to obtain a fixed member with said at least one precise positioning actuator section located at a rear surface side of said first member.

13. The manufacturing method as claimed in claim 12, wherein said dicing step includes cutting and separating said thin head element substrate into individual head sections, and wherein said fixing step includes integrally fixing an actuator section to each of said head sections so as to obtain a head slider with said actuator section located at a rear surface side of said head section.

14. The manufacturing method as claimed in claim 13, wherein said fixing step comprises fixing an actuator layer laminated on a base

member of said actuator section to said rear surface of said head section to obtain a head slider.

15. The manufacturing method as claimed in claim 13, wherein said method further comprises a step of preparing said actuator section that includes a pair of movable arms capable of displacing its top end portions in response to a drive signal applied to said actuator section and a static part formed between said pair of movable arms with spaces, and wherein said fixing step comprises fixing side surfaces of said head section to said top end portions of said pair of movable arms.

16. The manufacturing method as claimed in claim 15, wherein said preparing step comprises preparing said actuator section including a base to be fixed to a support means of said head slider, said pair of movable arms extending from said base.

17. The manufacturing method as claimed in claim 15, wherein each of said pair of movable arms comprises an arm member and a piezoelectric element formed on or fixed to a surface of said arm member.

18. The manufacturing method as claimed in claim 12, wherein said dicing step comprises dicing said thin head element substrate into a plurality of individual first bar members each having a plurality of

head elements aligned, wherein said fixing step comprises integrally fixing a second bar member with a plurality of actuator sections aligned to each of said first bar members so as to obtain a fixed bar member with said plurality of actuator sections located at a rear surface side of said first bar member, and wherein said method further comprises a step of cutting and separating said fixed bar member into individual head sliders.

19. The manufacturing method as claimed in claim 18, wherein said fixing step comprises fixing an actuator layer laminated on a base member of said second bar member to a rear surface of said first bar member so as to obtain said fixed bar member.

20. The manufacturing method as claimed in claim 18, wherein said method further comprises a step of preparing said second bar member each including a pair of movable arm regions capable of displacing its top end portions in response to a drive signal applied thereto and a static part region formed between said pair of movable arm regions with spaces, and wherein said fixing step comprises fixing side surfaces of said first bar member to said top end portions of said pair of movable arm regions of said second bar member.

21. The manufacturing method as claimed in claim 20, wherein said preparing step comprises preparing said second bar member including a base region to be fixed to a support means, said pair of movable

arm regions extending from said base region.

22. The manufacturing method as claimed in claim 20, wherein each of said pair of movable arm regions comprises an arm member region and a piezoelectric element region formed on or fixed to a surface of said arm member region.

23. The manufacturing method as claimed in claim 12, wherein each of said head elements is a thin-film magnetic head element.

24. The manufacturing method as claimed in claim 13, wherein said method further comprises a step of forming at least one air bearing surface on said actuator section for a head slider.

25. A manufacturing method of a head slider with a precise positioning actuator, comprising the steps of:

forming a plurality of head elements on a front surface of a head element substrate;

grinding a rear surface of said head element substrate with said plurality of head elements formed to have a thin head element substrate;

integrally fixing an actuator section substrate with a plurality of precise positioning actuator sections to a rear surface of said thin head element substrate so as to obtain a fixed substrate; and

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cutting and separating said fixed substrate into individual head sliders.

26. The manufacturing method as claimed in claim 25, wherein said fixing step comprises fixing an actuator layer laminated on a base member of said actuator section substrate to a rear surface of said thin head element substrate so as to obtain said fixed substrate.

27. The manufacturing method as claimed in claim 25, wherein said method further comprises a step of forming at least one air bearing surface on said actuator section for a head slider.

28. The manufacturing method as claimed in claim 25, wherein each of said head elements is a thin-film magnetic head element.

29. A manufacturing method of a head slider with a precise positioning actuator, comprising the steps of:

forming a plurality of head elements on a front surface of a head element substrate;

dicing said head element substrate with said plurality of head elements formed into a plurality of members;

grinding a rear surface of each of said members to have a thin members; and

integrally fixing an actuator section member with a plurality of precise positioning actuator sections to said thin member so as

to obtain a fixed member with said precise positioning actuator sections located at a rear surface side of said thin member.

30. The manufacturing method as claimed in claim 29, wherein each of said head elements is a thin-film magnetic head element.